

5. Compound causes may be reduced to simple ones by multiplying their elements together.

METHOD OF STATING BY CAUSE AND EFFECT.

CLVI. *Rule.*—As the first cause is to the first effect, so is the second cause to the second effect.

Note 1.—The first and last terms are called the extremes, and those intermediate, the means.

Note 2.—If the unknown quantity fall in the extremes, the product of the extremes must be the divisor, and the product of the means, the dividend, and *vice versa*.

Ex. If 4 men, in 3 days, can build $\frac{1}{4}$ of a wall, what part can 6 men build in 4 days? 4 men and 3 days, the first cause; $\frac{1}{4}$ the first effect; 6 men and 4 days, the second cause; 1, the second effect. $4 \times 3 : \frac{1}{4} :: 6 \times 4 : 1$ the statement.

Operation, $4 \times 3 = 12 \times 1 = 12$, divisor; $6 \times 4 = 24 \times \frac{1}{4} = 6$, dividend; thus, $6 \div 12 = \frac{1}{2}$ of the wall, the answer.

2. If 4 men, in 3 days, can build $\frac{1}{4}$ of a wall, how many men must be employed for 4 days to build $\frac{1}{2}$? Statement, 4 men and 3 days $\frac{1}{4} :: 1$ and 4 days $\frac{1}{2}$. Ans. 6 men.

2. Three carpenters, A, B and C, can build a house in $3\frac{1}{2}$ months; A and B can build it in 4 months in what time can C build it working alone? Ans. 28 months.

Solution, $3\frac{1}{2} = \frac{7}{2}$; $1 \div \frac{7}{2} = \frac{2}{7}$, what 3 did in one month; $1 \div 4 = \frac{1}{4}$ what 2 did in one month; $\frac{2}{7} - \frac{1}{4} = \frac{1}{28}$; what C did in one month, if C did $\frac{1}{28}$ in one month, it will require 28 months to complete the work.

Suggestion. This question may be proved by adding what C did to what A and B did, and the sum will be equal to what the three did.